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⑱ ①

CANADIAN PATENT

⑥ **LACROSSE STICK**

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U. S. A.**

**Granted to Wm. T. Burnett & Company, Incorporated,
U. S. A.**

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No. OF CLAIMS 12

This invention relates in general to new and useful improvements in lacrosse sticks, and more particularly to the formation of the web of the head of a lacrosse stick.

The webbing of a lacrosse stick is normally
5 formed by interweaving within the frame thereof both longitudinally and transversely through suitable strips or lacing. Such a web construction is time consuming to install, and thus expensive.

Further, it is to be understood that the prior
10 lacing has been such that should a lace become cut, instead of only one small portion of the webbing being affected, the webbing is affected over a large area.

It is proposed to overcome the deficiencies of the prior used lacing type webbing by substituting therefor
15 a knitted mesh. The knitted mesh may be readily opened in accordance with the spacing between the side walls of the head of a lacrosse stick so that an elongated strip of the knitted mesh, which would normally have a rectangular outline, may be readily adapted to the generally V-outline of
20 a lacrosse stick head.

It has also been found that while the knitted mesh is relatively widely expanded adjacent the end wall of the head frame so as to provide the desired stretched webbing, the knitted mesh is relatively closed adjacent the throat
25 of the head. As a result, the knitted mesh provides for excellent ball handling. The mesh is firm adjacent the end



wall of the head while being readily deformable away from the plane of the head adjacent the throat to define a ball pocket. It has also been found that the mesh, because of the woven construction thereof, should any woven strand thereof become severed, only a limited area of the webbing is affected.

10 It has also been found that by forming the webbing so that it extends beyond the throat in generally overlapping relation to the adjacent end of the stick portion, in the event the webbing should become scuffed in the area thereof adjacent the end wall of the frame, it may be removed from the frame, inverted, reformed and re-installed so that approximately a double life may be obtained from the knitted mesh.

20 According to a broad aspect, the present invention provides a head for a lacrosse stick which comprises a generally V-shaped frame and a web closing the frame. The frame is defined by two side walls joined at a jointure and diverging therefrom. A transverse wall joins the opposite ends of the side walls and a transverse stop joins the side walls spaced from the jointure. The web is in the form of an inherently expandable mesh defining a plurality of deformable interstices. Means is provided to secure the mesh to the frame along the side walls, the end wall and generally at the stop. The interstices of the web are widely transversely expanded adjacent the end wall and visibly materially less transversely expanded adjacent the stop. The mesh adjacent the stop is further transversely expandable to define a ball pocket.

30 With the above and other objects in view that will hereinafter appear, the nature of the invention will be

more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings:

IN THE DRAWINGS:

Figure 1 is a schematic view of the knitted mesh and shows the manner in which it may be provided in strip form.

Figure 2 is a schematic view showing a cut length of the knitted mesh rearranged to match generally the head in which it is to be mounted.

10

Figure 3 is a further schematic view showing the mesh with the extreme end portion of the mesh at the widely expanded end thereof reversely folded upon itself to define a reinforced end.

5 Figure 4 is a fragmentary elevational view of a lacrosse stick incorporating the knitted mesh of Figure 3 as the webbing for the head thereof.

10 Figure 5 is a fragmentary side elevational view of the lacrosse stick of Figure 4 and shows details of the securement of the knitted mesh within the lacrosse stick head.

Figure 6 is an enlarged back elevational view of the lacrosse stick and shows further the specific details of the knitted mesh and the securement thereof to the head.

15 Figure 7 is a transverse horizontal sectional view taken along the line 7-7 of Figure 6 and shows the knitted mesh in its initially disposed arrangement.

20 Figure 8 is a schematic transverse sectional view similar to Figure 7 and shows the manner in which the knitted mesh may be formed adjacent the throat of the head to form a ball pocket.

25 Referring now to the drawings in detail, it will be seen that there is illustrated in Figures 4, 5 and 6 a lacrosse stick which is generally identified by the numeral 10 and which includes a head, generally identified by the numeral 11 and a replaceable stick 12. The head 11 is

provided with a web or webbing, generally identified by the numeral 13, formed in accordance with this invention.

At this time it is pointed out that the head 11 may be constructed in accordance with that of the lacrosse stick of our U.S. Patent No. 3,507,495, granted April 21, 1970. Accordingly, the details of the head 11 will only be broadly described hereinafter.

The head 11 is, in general, a closed frame like construction of somewhat V-shape, preferably substantially symmetrical. The bottom or lower end of the head is formed as a throat 14 from which two side walls 15,15 are inclined and diverge upwardly and outwardly. The upper ends of the side walls 15,15 are connected by a transverse top or end wall 16 which merges with the side walls 15,15 through intervening smoothly curved portions 17,17. It is to be noted that the end wall 16 is of an upwardly arched construction and is twisted generally from the planes of the side walls 15,15 and is disposed in a plane slightly inclined with respect to the general plane of the head 11 so as to facilitate the fielding of ground balls.

A transverse stop 18 extends generally about the side walls 15,15 and which cooperates with the throat 14 and adjacent portions of the side walls 15,15 to facilitate the mounting of the head 11 on the stick 12, this area generally constituting a throat area 14' which may selectively have an open or closed center.

Positioned inside the stop 18 is a layer 20 of relatively soft resilient material. The layer 20 provides for markedly improved ball handling properties.

As set forth above, the lacrosse stick 10 differs from the lacrosse stick of our prior Patent No. 3,507,495 in the construction of the webbing 13. Instead of the webbing being constructed in the form of a plurality of separate thongs and transverse lacing components, the webbing 13 is formed from a length of knitted mesh 21.

As best illustrated in Figure 1, the knitted mesh 21 may be knitted as a continuous strip of woven material having selvage edges 22,22. The knitted mesh 21 is formed generally in accordance with that disclosed in U.S. Patent No. 2,992,550 granted July 18, 1961, and U.S. Patent No. 3,171,272, granted March 2, 1965. As disclosed in these two patents, the knitted mesh 21 is preferably formed of a high strength synthetic material, particularly nylon. It has been found that a mesh knitted generally in accordance with the two above-identified patents and formed of 840 denier, 140 filament Type 702 duPont yarn, performs satisfactorily.

The knitted mesh is woven in an open state, but may be readily closed by longitudinally tensioning the same. Accordingly, normally the knitted mesh will be provided in a non-expanded form, as shown in Figure 1. Accordingly, the formation of the webbing 13 will be so described.

As is shown in Figure 1, the elongated length of the knitted mesh 21 will be cut to a predetermined length. The knitted mesh 21 defines a plurality of deformable interstices. Then, as shown in Figure 2, while the inter-
5 stices of one end portion remain unexpanded, the interstices at the opposite end portion are widely expanded and the mesh is expanded to a width generally conforming to the width of the head 11 adjacent the end wall 16. It is to be noted that the woven mesh tapers in width from the unexpanded por-
10 tion to the expanded end and this taper is generally in accordance with the divergence of the side walls 15,15.

Referring now to Figure 3, it will be seen that the end edge of the knitted yarn 21 at the expanded end thereof is reversely folded upon itself. The rearranged
15 knitted mesh 21 is now ready for installation within the head 11.

At this time it is pointed out that in the event the knitted web is provided in expanded form, then the web may be rearranged to have the configuration shown in
20 Figure 2 by longitudinally tensioning the mesh and forcing the strands thereof together adjacent one end of the severed section thereof. The net result in each instance will be the knitted mesh arrangement shown in Figure 3.

The webbing 13 is applied to the head 11 starting
25 at the end wall 16 thereof. A binding member 23, which is preferably in the form of a leather thong, is threaded

through a suitable aperture in one of the side walls 15 adjacent its intersection with the end wall 16 and is knotted as at 24 (Figure 6). The binding member is interlocked at intervals with the end wall 16 by passing the same through apertures 25 therein and with the woven mesh 21 by passing the same through open meshes in the doubled over edge of the woven mesh adjacent the openings 25. The opposite end portion of the binding 23 is then passed through an aperture in the other of the side walls 15 and knotted as at 26.

10 It is to be noted that the knitted mesh 21 is of a length to extend beyond the area of the throat 14 into partial overlapping relation with respect to the stick 12. An intermediate portion of the knitted mesh 21 is secured to the head 11 in the general area of the throat by a further binding 27, preferably in the form of a second leather thong. 15 An intermediate portion 28 of the binding 27 is threaded transversely through the woven mesh adjacent the stop 18 and then is looped upon itself and through suitable apertures formed in the stop 18.

20 The end portions of the binding 27 extend further down into the throat area and are passed through apertures generally formed in the throat portion and knotted as at 31.

Each selvage edge 22 of the knitted mesh is secured to its respective side wall 15 by means of a further 25 binding 32. The binding 32 is preferably formed of extruded or woven cording.

As is best shown in Figures 4 and 6, one end of each of the bindings 32 is knotted as at 33 and passed outwardly through an aperture 34 in its respective side wall 15 in the throat area. The binding 32 then passes into the interior of the head 11 along the respective side wall 15 and is interwoven longitudinally through the knitted mesh 21 immediately adjacent the associate selvage edge thereof until it reaches a point adjacent the end wall 16 where it is fed through an aperture 35 in the respective side wall 15 and knotted as at 36. The binding 32 then is passed back down towards the throat area and at intervals is passed through apertures 37 in the respective side wall 15 and is looped through the woven mesh and about the portion of the binding 32 which is woven through the woven mesh. The binding 32 is further secured to the respective side wall 15 by means of a knot 38.

The binding 32 at the opposite side of the head 11 is like formed.

It is to be understood that when the woven mesh 21 is properly bound within the head 11, it is slightly longitudinally tensioned between the stop 18 and the end wall 16 and is generally transversely tensioned between the side walls 15,15 adjacent the end wall 16. Thus, the knitted mesh 21 is relatively tight adjacent the end wall 16 so as to facilitate ball control. At the same time, the knitted mesh is upwardly arched at the upper edge thereof generally

conforming to the arch of the end wall 16 with the arching of the knitted mesh 21 gradually decreasing towards a minimum adjacent the stop 18.

It will be readily apparent that notwithstanding the initial rectangular outline of the knitted mesh 21 and the V-shaped outline of the head 11, the knitted mesh completely fills the head 11 without wrinkling. On the other hand, because the knitted mesh 21 is relatively closed adjacent the throat area, it will be seen that when a force is applied against the knitted mesh 21 adjacent the stop 18, such as by a ball entering the head 11, the knitted mesh 21 in the area above the stop 18 is rearwardly deformed to define a ball pocket 40 as is best shown in Figure 8. It is to be understood that the ball pocket 40 is automatically formed and requires no special weaving of the knitted mesh nor any special securement of the knitted mesh 21 in the head 11.

In order to reinforce and stiffen the knitted mesh 21 adjacent the end wall 16, a pair of transverse lacings 41 and 42 are provided. The transverse lacing 41 has the opposite ends thereof secured within the knot 24 of the binding 23 and the central portion thereof secured in the knot 26 of the binding 23. One part of the lacing 41 extends across the back of the knitted mesh 21 and the other portion thereof is interwound around the one portion and through the meshes of the knitted web.

The lacing 42 has the central portion thereof retained within the knot 36 of one of the bindings 32 and, like the lacing 41, has one portion thereof extending across the back of the knitted mesh 21 and the other portion thereof interwoven through the knitted mesh and around the one portion. The lacing 42 then extends through the knot 36 of the other binding 32 and is knotted about the knot 24.

It will be apparent that the construction of the knitted mesh 21 is one wherein maximum ball handling qualities are obtained. The automatic formation of the ball pocket assures a proper reception and retention of a ball and the tensioning of the knitted mesh 21 accompanied by the reinforcing thereof through the application of the lacings 41,42 provides for the desired ball control both in picking up ground balls and in passing the ball.

In addition, because the knitted mesh 21 is rather closely woven, further ball handling control can be obtained together with added strength of the webbing 13. Additionally, because of the fact that the mesh 21 is knitted, in the event a strand thereof should rupture, the deficiency of the webbing is only minimal.

Finally, by forming the knitted mesh so as to be elongated beyond the extent actually required for the filling of the space between the side walls 15,15 and the end wall 16 and stop 18, at a slightly additional cost, beneficial results are possible.

Primary scuffing of the webbing 13 occurs adjacent the end wall 16. When this scuffing becomes excessive, instead of renewing the webbing, it is merely necessary to release the knitted mesh 21 from the frame 11 and to either
5 move the knitted mesh 21 upwardly relative to the frame 11, the scuffed end portion of the knitted mesh being cut off, or the knitted mesh may be inverted. If the knitted mesh 21 is inverted, the expanded portion thereof will have to be contracted by a longitudinal tensioning of the knitted mesh,
10 after which the unexpanded portion thereof will have to be expanded to match the head 11.

Although only a preferred embodiment of the webbing has been specifically illustrated and described herein, it is to be understood that the knitted mesh which is
15 utilized as the webbing may be varied without departing from the spirit of the invention, and the scope of the appended claims.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN
EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED
AS FOLLOWS:

1. A head for a lacrosse stick comprising a generally V-shaped frame and a web closing said frame; said frame being defined by two side walls joined at a jointure and diverging therefrom, a transverse wall joining the opposite ends of said side walls, and a transverse stop joining said side walls spaced from said jointure; said web being in the form of an inherently expandable mesh defining a plurality of deformable interstices, means securing said mesh to said frame along said side walls and said end wall and generally at said stop, the interstices of said web being widely transversely expanded adjacent said end wall and visibly materially less transversely expanded adjacent said stop, and said mesh adjacent said stop being further transversely expandable to define a ball pocket.

2. The head of claim 1 wherein the means securing said mesh to said end wall and generally at said stop permit limited longitudinal elongation of said mesh to facilitate said further expansion of said mesh adjacent said stop.

3. The head of claim 1 wherein said mesh extends beyond said stop remote from said end wall, and at least a part of said mesh beyond said stop being substantially free

of transverse expansion.

4. The head of claim 1 wherein said mesh is a knitted mesh.

5. The head of claim 1 wherein said mesh is a knitted mesh formed primarily of synthetic fibres including nylon.

6. The head of claim 1 wherein said mesh is of a configuration wherein said mesh would be rectangular in both an unexpanded form and a fully expanded form.

7. The head of claim 1 wherein said mesh is provided with a folded end portion adjacent said end wall.

8. The head of claim 1 wherein said mesh has a selvage edge on the two opposite sides thereof connected to said side walls.

9. The head of claim 1 wherein said mesh is reinforced by a transverse reinforcement extending between said side walls adjacent said end wall, said transverse reinforcement being interwoven through said mesh.

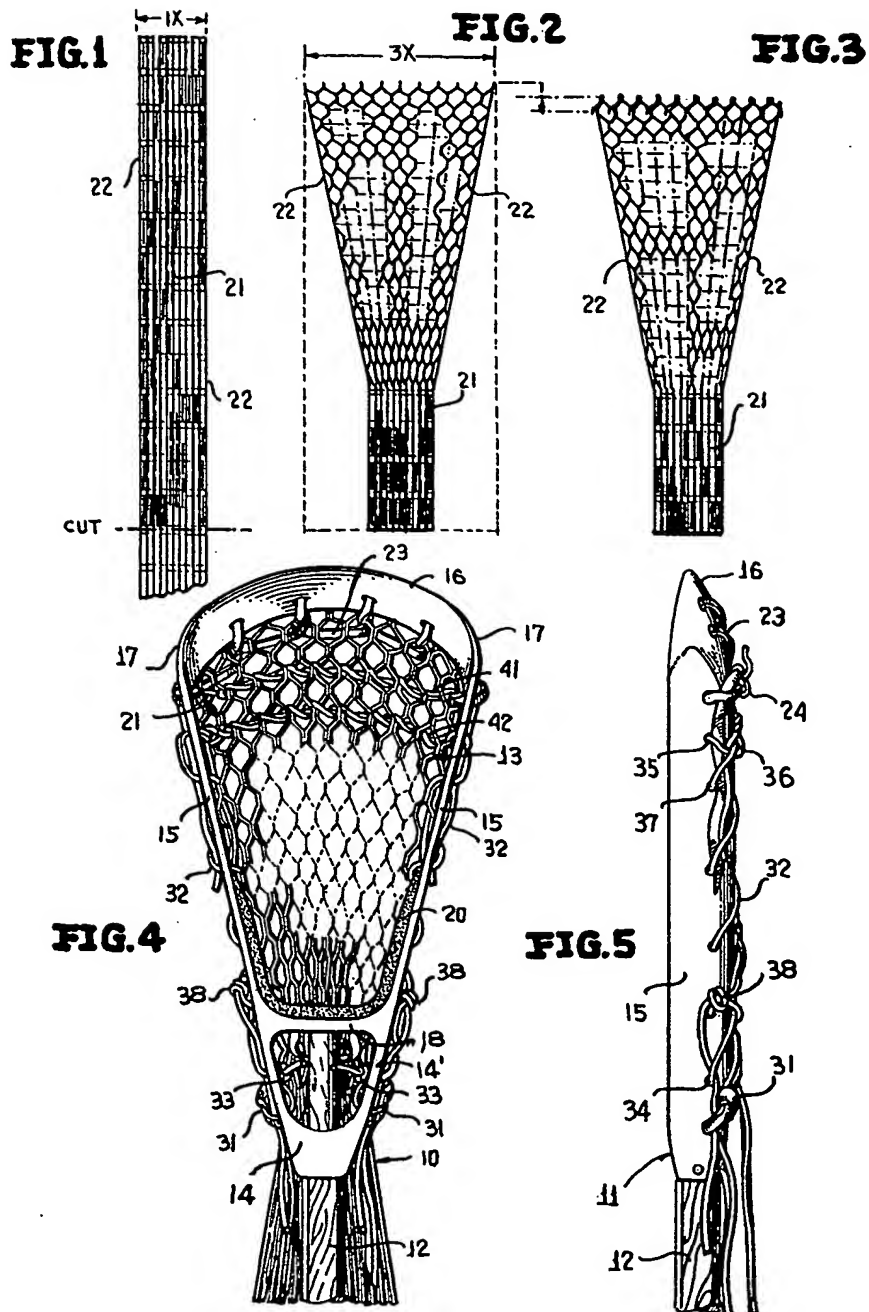
10. The head of claim 1 wherein said means securing said mesh to said frame includes binding means separate and apart from said mesh along said side and end walls and generally at said stop, said binding means being interlaced with said frame through apertures therein and with said mesh.

11. The head of claim 1 wherein said end wall is generally curved in arched relation with respect to said

side walls and the adjacent end of said mesh is similarly arched.

12. The head of claim 11 wherein the arching of said mesh gradually decreases towards a minimum adjacent said stop.

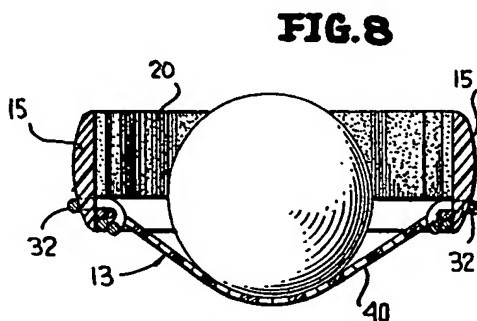
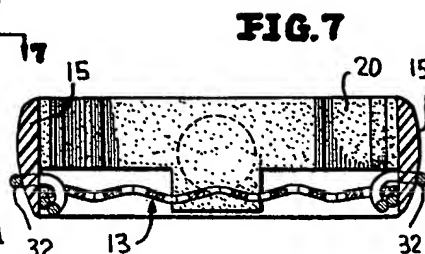
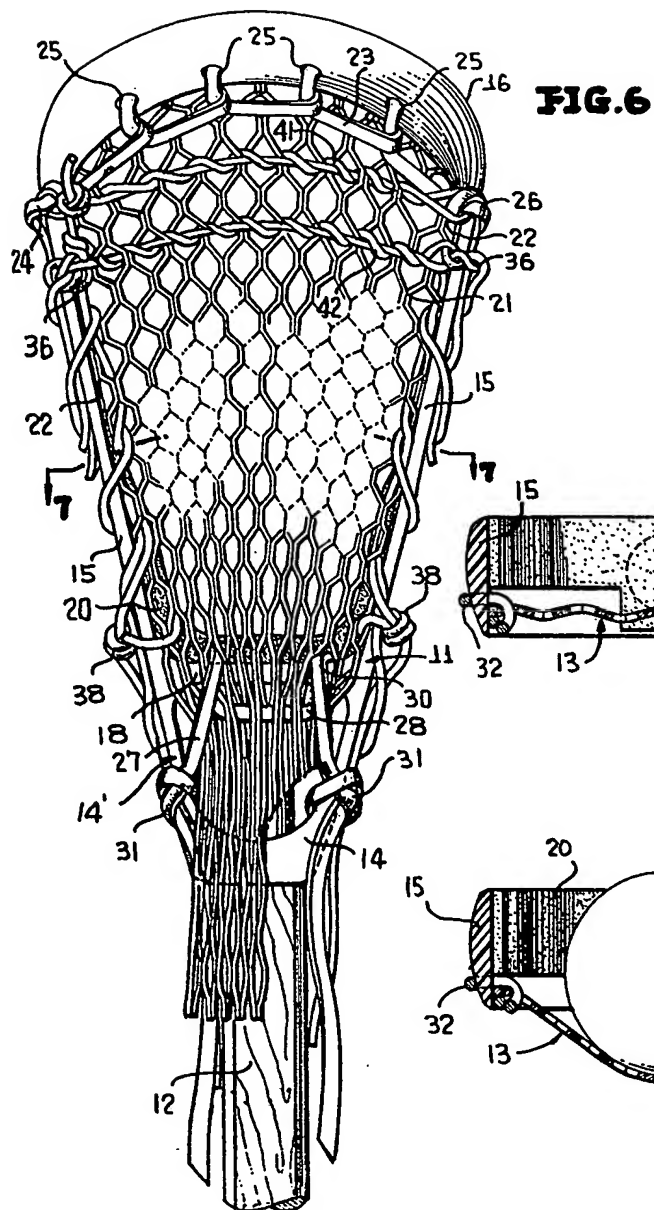




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